

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
14 April 2005 (14.04.2005)

PCT

(10) International Publication Number  
**WO 2005/034286 A1**

(51) International Patent Classification<sup>7</sup>: **H01Q 1/24**,  
1/38, 9/04

(21) International Application Number:  
PCT/FI2004/000531

(22) International Filing Date:  
14 September 2004 (14.09.2004)

(25) Filing Language: Finnish

(26) Publication Language: English

(30) Priority Data:  
20031478 9 October 2003 (09.10.2003) FI

(71) Applicant (for all designated States except US): **FIL-  
TRONIC LK OY** [FI/FI]; Takatie 6, FI-90440 Kempele  
(FI).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **KORVA, Heikki**  
[FI/FI]; Peltorivi 4 C 14, FI-90440 Kempele (FI).  
**NIEMELÄ, Ilkka** [FI/FI]; Lepikkotie 2 A 1, FI-90460  
Oulunsalo (FI).

(74) Agent: **BERGGREN OY AB**; Lentokatu 2, FI-90460  
Oulunsalo (FI).

(81) Designated States (unless otherwise indicated, for every  
kind of national protection available): AE, AG, AL, AM,  
AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,  
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,  
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,  
KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,  
MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG,  
PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM,  
TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM,  
ZW.

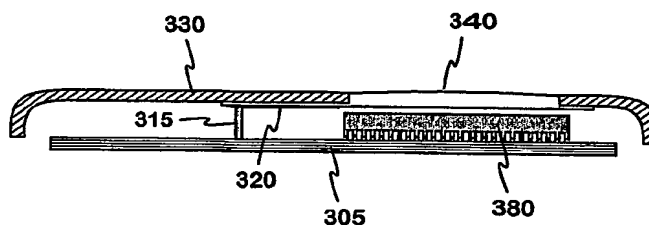
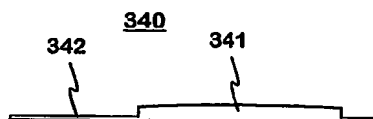
(84) Designated States (unless otherwise indicated, for every  
kind of regional protection available): ARIPO (BW, GH,  
GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,  
ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),  
European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI,  
FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI,  
SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ,  
GW, ML, MR, NE, SN, TD, TG).

**Published:**

- with international search report
- with amended claims

For two-letter codes and other abbreviations, refer to the "Guid-  
ance Notes on Codes and Abbreviations" appearing at the begin-  
ning of each regular issue of the PCT Gazette.

(54) Title: COVER STRUCTURE FOR A RADIO DEVICE



(57) Abstract: The invention relates to a cover structure for a portable radio device, which structure also serves the forming of an antenna for the radio device. The cover of the radio device comprises a conductive planar component (330) and a dielectric planar component (340) fastened together. A certain part of the dielectric component extends under the conductive component. On the lower surface of that component, i.e. on the inner surface of the cover of the radio device and isolated from the conductive component of the cover, there is a conductive element (320), which is dimensioned to function as the feed element of the conductive component of the cover. Then the conductive component of the cover for its part functions as the radiator of the antenna of the radio device. Thus the cover structure of the radio device is utilized with only minor changes to implement such an antenna structure in which the electromagnetically fed radiating element is part of the cover of the radio device. The antenna becomes simple, with stable electric characteristics and using the space of the radio device efficiently.

WO 2005/034286 A1